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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ROSARIO, DENNIS	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/811,312	BODO ET AL.	
	Examiner	Art Unit	
	Dennis Rosario	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19,22 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19,22 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment was received on 8/8/07. Claims 1-19,22 and 25 are pending.

Claim Rejections - 35 USC § 101

2. Due to the amendment the rejection of claims 20- 23 are withdrawn.

Response to Arguments

3. Applicant's arguments on page 9 of the remarks, filed 8/8/07 have been fully considered but they are not persuasive and states:

> **"Vynne does not recite 'a motion vector being identified by its coordinates in a reference space partitioned into two zones of complementary types, one zone surrounding the other zone, each zone having a distinct binary value associated with it...'"**

The examiner respectfully disagrees since Vynne does recite a motion vector (fig. 3.2,num. 325) being identified (since the motion vector is being "modif[ied]" in col. 7, line 48) by its coordinates (wherein said modified corresponds to modifying a "coordinate" in col. 7, line 49) in a reference space ("basis...frame (n-1)" in col. 7, line 45 shown in fig. 3.2 as 321) partitioned (via a search method as shown in fig. 3.1A that focuses on a particular portion corresponding to fig. 3.1A,num. 310 and fig. 3.2,num. 321: shaded square, while the remaining portion, fig. 3.1A,num. 312 and fig. 3.2,num. 321: unshaded squares, is not considered or is partitioned from 310 or the shaded square during the search) into two zones (fig. 3.1A,numerals 310 and 312 corresponding to fig. 3.2,num. 321 as a shaded square and unshaded squares) of complementary types (i.e a search zone and not a search zone or a shaded square or not a shaded square), one zone surrounding the other zone (as shown in fig. 3.1A and fig. 3.2,num. 321), each zone (or in other words all of fig. 3.2,num. 321) having a distinct binary value associated with it (since the motion vector 325 appears to originate or "obtained" in col. 13, line 57 from a shaded block of fig. 3.2,num. 321 where the vector is "binary... code[d] (abstract, lines 14,15)." Thus, the block has a binary vector associated with the block).

4. Applicant's arguments on page 9 of the remarks, filed 8/8/07 have been fully considered but they are not persuasive and states:

> **"Vynne does not recite... 'an insertion step implementing, if necessary, a modification of the coordinates of the motion vector so that it is located in a binary value zone corresponding to said watermarking bit to be inserted.'"**

The examiner respectfully disagrees since Vynne does recite an insertion step (or "embedding technique" in col. 7, line 47) implementing, if necessary ("if necessary" in col. 7, line 48), a modification of the coordinates of the motion vector "modify...coordinate of the motion vectors" in col. 7, lines 47,48) so that it is located in a binary value zone (or "blocks suitable...for coding" in col. 14, lines 60,61) corresponding to said watermarking bit (represented in "Equation 3.2" in col. 15, line 5) to be inserted.

5. In response to applicant's argument on page 9, last paragraph that references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "...a reference space comprising blocks...") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

6. In response to applicant's argument on page 10,lines 12,13 last paragraph that references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "...blocks are divided...") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-7,11-15,17-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Vynne et al. (US Patent 5,960,081).

Regarding claim 1, Vynne discloses a method for the watermarking of a sequence of video images, implementing:

a) a step (fig. 2.2,num. 218) for the insertion of at least one watermarking bit into at least one motion vector (see abstract, lines 4-6) obtained by motion estimation between two images of said sequence, so as to obtain at least one watermarked motion vector,

a1) said motion vector being identified by its coordinates (see abstract, lines 5,6) in a reference space (fig. 3.2,num. 321), partitioned into two zones of complementary types (corresponding to a sky and house in fig. 2.4B), one zone surrounding the other zone, each zone having a distinct binary value associated with it (due to watermarking said fig. 3.2,num. 321 or see paragraph 3, above, for limitation a1)),

a2) said insertion step implementing, if necessary ("if necessary" in col. 31, line 34),

a21) a modification (fig. 10A: "newmotion") of the coordinates of the motion vector so that it is located in a binary value zone corresponding to said watermarking bit to be inserted (or see paragraph 4,above, for limitations a2) and a21)),

a211) wherein, during said modification, at least two potential watermarked motion vectors are determined (since a "selection criteria" in the abstract, line 8 is used) and,

a2111) from among said potential watermarked motion vectors, an optimal watermarked motion vector is selected according to at least one predetermined criterion ("selection criteria" in the abstract, line 8 and shown in fig. 4.9: CRITERIA), so that the modified coordinates of said motion vector are those of said optimal watermarked motion vector.

Regarding claim 2, Vynne discloses a watermarking method according to claim 1, wherein said predetermined criterion is a criterion of invisibility ("visible artifacts" in abstract, line 7) of said watermarking.

Regarding claim 3, Vynne discloses a watermarking method according to claim 1, wherein said reference space is associated with a reference grid (as shown in fig. 3.2,num. 321) comprising blocks of predetermined dimensions, each of said blocks comprising a zone of each of said types.

Regarding claim 4, Vynne discloses a watermarking method according to claim 3 wherein, said motion vector is located in a reference block of said reference grid, said potential watermarked motion vectors are searched for in a zone (via fig. 3.1,num. 310) of said reference block having a binary value corresponding to said watermarking bit.

Regarding claim 5, Vynne discloses a watermarking method according to claim 4, wherein said potential watermarked motion vectors are also searched for in a binary value zone corresponding to said watermarking bit, belonging to at least one block Adjacent (as shown by the shaded area of fig. 3.2,num. 321) to said reference block.

Regarding claim 6, Vynne discloses a watermarking method according to claim 4, wherein said potential watermarked motion vectors are all the motion vectors ("all motion vectors" in the abstract, line 6) located in said searched zone.

Regarding claim 7, Vynne discloses a watermarking method according to claim 1, wherein said predetermined criterion is a criterion of optimization of a peak signal-to-noise ratio (PSNR) (in col. 4, line 55) associated with each of said potential watermarked motion vectors.

Regarding claim 11, Vynne discloses a watermarking method according to claim 1, wherein said motion estimation is of the "block matching" type (as shown in fig. 3.2,num. 325).

Claim 12 is rejected the same as claim 11. Thus, argument similar to that presented above for claim 11 is equally applicable to claim 129.

Regarding claim 13, Vynne discloses a watermarking method according to claim 12, wherein each of said motion vectors being associated with a region of said image, said motion compensation is implemented on all the regions (or "each block" in col. 13, line 47) of said image, associated with watermarked or non-watermarked motion vectors.

Claim 14 is rejected the same as claim 13. Thus, argument similar to that presented above for claim 13 is equally applicable to claim 14.

Regarding claim 15, Vynne discloses a method for the extraction of a watermark from a video image sequence watermarked according to the method of claim 1, comprising a step for the extraction of at least one watermarking bit inserted into at least one watermarked motion vector, said extraction step comprising the sub-steps of:

a) motion estimation (fig. 3.6,num. 365) between two images of said sequence, so as to obtain said at least one watermarked motion vector;

b) analysis of the position (to obtain "a perfect match somewhere" in col. 15, lines 34,35 of matching frames) of said watermarked motion vector in a reference space, partitioned into two types of complementary zones, each of which has a distinct binary value associated with it;

c) the assigning to said watermarking bit of the binary value of the zone in which said motion vector is located (corresponding to equation 3.2 in col. 15, line 5).

Regarding claim 17, Vynne discloses a method of extraction according to claim 15, wherein, said watermarking bit being inserted redundantly ("redundancy" in col. 16, line 18) into said video image sequence, said method of extraction comprises:

a) a step for the computation of at least one correlation coefficient ("error rate" in col. 16, line 7) used to assign an index of trust to said extracted watermarking bit.

Claim 18 is rejected the same as claim 1. Thus, argument similar to that presented above for claim 1 of a method is equally applicable to claim 18 of a means for.

Claim 19 is rejected the same as claim 15. Thus, argument similar to that presented above for claim 15 is equally applicable to claim 19.

Claim 22 is rejected the same as claim 1. Thus, argument similar to that presented above for claim 1 is equally applicable to claim 22.

Claim 25 is rejected the same as claim 15. Thus, argument similar to that presented above for claim 15 is equally applicable to claim 25.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vynne et al. (US Patent 5,960,081) in view of Han et al. (US Patent 6,845,130 B1).

Regarding claim 8, Vynne does not teach claim 8 but teaches "...the watermark procedure could...take advantage of the...decomposition of the images..." in col. 11, lines 37-39. Thus, Vynne suggests to one of ordinary skill in the art of decomposition of images that decomposition of images provides an advantage for watermarking.

Han teaches a decomposition of images as shown in figure 2 and claim 8 of:

a) an image of said video sequence being associated with at least two hierarchical levels (fig. 2,numerals 22 and 24), said method implements a motion estimation (see title) on at least one pair of images of said sequence for at least one of said levels so as to determine a set of motion vectors (as indicated in figures 3 and 4) of said level, and wherein the motion vectors of a higher hierarchical level (fig. 3,num. 36) are obtained by computing an average ("average" in col. 3, line 21) of the associated motion vectors in the lower level.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Vynne's teaching of decomposition with watermarking with Han's teaching of fig. 2, because Han teaching provides a method of "optimizing the encoding for transmission of motion video images" in col. 1, lines 61,62.

Claim 16 is rejected the same as claim 8. Thus, argument similar to that presented above for claim 8 is equally applicable to claim 16.

11. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vynne et al. (US Patent 5,960,081) in view of Han et al. (US Patent 6,845,130 B1) as applied to claim 8 above, and further in view of Vynne et al. (US Patent 5,960,081).

Regarding claim 9, Han of the combination teaches a watermarking method according to claim 8 comprising:

a) a step for the selection ("selective search" in col. 3, line 10), from among the motion vectors of the highest hierarchical level (fig. 3,num. 38), of at least one motion vector (as shown in fig. 3,num. 38) at which said step for the insertion of a watermarking bit is implemented.

Han of the combination does not teach the claimed insertion of a watermarking bit, but does teach "coding of...motion vector **38**" in col. 3, lines 58,59. Thus, Han suggests to one of ordinary skill in the art that motion vectors can be coded using a coding method.

Vynne teaches a coding method and the remaining limitation of claim 9 in claim 1.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Han's teaching of coding motion vectors with Vynne's coding, because Vynne's coding provides protection of video.

Regarding claim 10, Han of the combination teaches a watermarking method according to claim 9, wherein

a) a modification of the coordinates (as shown by the change of direction of vectors of fig. 3 from each level) of said selected motion vector (fig. 3,num. 38) is also applied to the corresponding motion vectors of at least one of said lower levels (fig. 3,num. 36), so as to perform a redundant insertion of said watermarking bit.

Allowable Subject Matter

12. The examiner notes that there is a structural distinction between the examiner's interpretation of figures 3.1A and 3.2 of Vynne and the applicant's disclosure of fig. 3 and suggests discussing claim language that overcomes Vynne.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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